ORDER NO. MD9207070C2

Service Manual

FM-AM Portable Radio

Radio

RF-544

Colour

(K) . . . . . Black Type

Area

Suffix for Model No.	Area	Colour
(E)	Europe	(K)
(EB)	Great Britain	
(EG)	F.R.Germany & Italy	

■ SPECIFICATIONS

General :

Power Requirement :	AC; 230~240V, 50Hz Battery; 6V, four R6/LR6 (UM-3) batteries
Power Output :	680mW ...RMS (max.)
Power Consumption :	3W (AC only)
Speaker :	8cm PM Dynamic Speaker (4Ω)
Jacks :	Output; Earphone (8Ω, 370mW)
Dimensions :	222 (W) x 121 (H) x 79 (D) mm
Weight :	560g without batteries.

Radio Section :

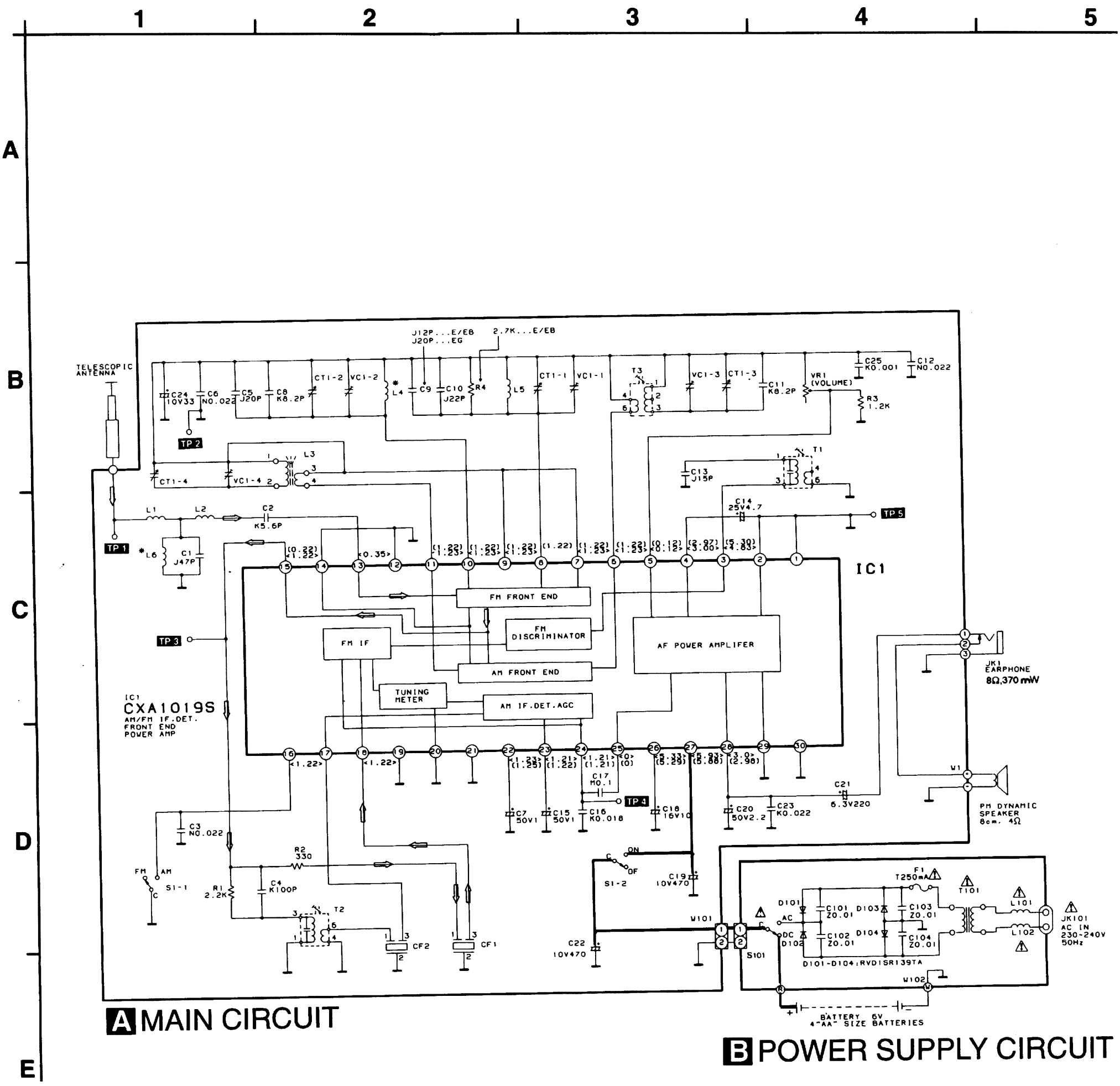
Frequency Range :	FM; 87.5 ~ 108 MHz AM; 520 ~ 1610 kHz
Intermediate Frequency :	FM; 10.7 MHz AM; 459 kHz
Sensitivity :	FM; 18 dB/50 mW output (-3 dB Limit Sens.) AM; 57 dB/m/50 mW output

Notes :

1. Weights and dimensions shown are approximate.
2. Design and specifications are subject to change without notice.

Panasonic

■ SCHEMATIC DIAGRAM



A MAIN CIRCUIT

B POWER SUPPLY CIRCUIT

■ MEASUREMENTS AND ADJUSTMENTS

■ ALIGNMENT INSTRUCTIONS

READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT	
1. Set volume control to maximum. 2. Set band switch to AM or FM .	3. Set power source voltage to 6V DC. 4. Output of signal generator should be no higher than necessary to obtain an output reading.

■ AM-IF ALIGNMENT

SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (ELECTRONIC VOLTMETER or OSCILLOSCOPE)	ADJUSTMENT (Shown in Fig.3)	REMARKS
CONNECTIONS	FREQUENCY				
Fashion a loop of several turns of wire and radiate signal into loop of receiver.	459kHz 30% Mod. at 400Hz	Point of non-interference.(on/ about 600kHz)	Headphones Jack (16 ~ 32Ω) (Fabicate the plug as shown in Fig.2 and then connect the lead wires of the plug to the measuring instrument.)	T2(AM IFT)	Adjust for maximum output.

■ AM-RF ALIGNMENT

Fashion a loop of several turns of wire and radiate signal into loop of receiver.	511kHz (E/EB) 514±3kHz(EG)	Tuning capacitor fully closed.	"	T3 (AM OSC Coil)	Adjust for maximum output.
"	1650kHz(E/EB) 1639±5kHz(EG)	Tuning capacitor fully open.	"	CT1-3 (AM OSC Trimmer)	Adjust for maximum output.
"	550kHz	Tune to signal	"	[*1] L3 (AM ANT Coil)	Adjust for maximum output. Adjust L3 by moving coil bobbin along ferrite core.
"	1500kHz	"	"	CT1-4 (AM ANT Trimmer)	Adjust for maximum output.
[*1] Fix antenna coil with wax after completing alignment.					

■ FM-IF ALIGNMENT

SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (ELECTRONIC VOLTMETER or OSCILLOSCOPE)	ADJUSTMENT (Shown in Fig. 3)	REMARKS
CONNECTIONS	FREQUENCY				
Connect to test point TP3 through ceramic capacitor. Negative side to test point TP2 .	10.7MHz (Sweep)	Point of non-interference.(on/ about 90MHz)	Connect vert. amp. of scope to test point TP4 . Negative side to test point TP5 .	T1 (FM IFT)	Waveform is shown in Fig. 2

■ FM-RF ALIGNMENT

Connect to test point TP1 through FM dummy antenna. Negative side to test point TP2 .	86.2MHz(E/EB) 87.35±0.05MHz(EG)	Variable capacitor fully closed.	Headphones Jack (16 ~ 32Ω) (Fabicate the plug as shown in Fig.1 and then connect the lead wires of the plug to the measuring instrument.)	L5 (FM OSC Coil)	[*2] Adjust for maximum output.
	109.2MHz(E/EB) 108.25±0.05MHz(EG)	Variable capacitor fully open.	"	CT1-1 (FM OSC Trimmer)	"
	106 MHz	Tune to signal.	"	CT1-2 (FM ANT Trimmer)	"
[*2] Three output response will be present; proper tuning is the center frequency.					

• ALIGNMENT POINT

• Please refer to Circuit Board and Wiring Connection Diagram for test point locations.

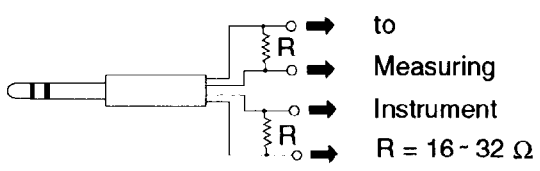


Fig.1

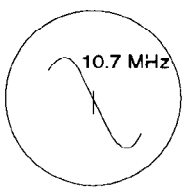


Fig.2

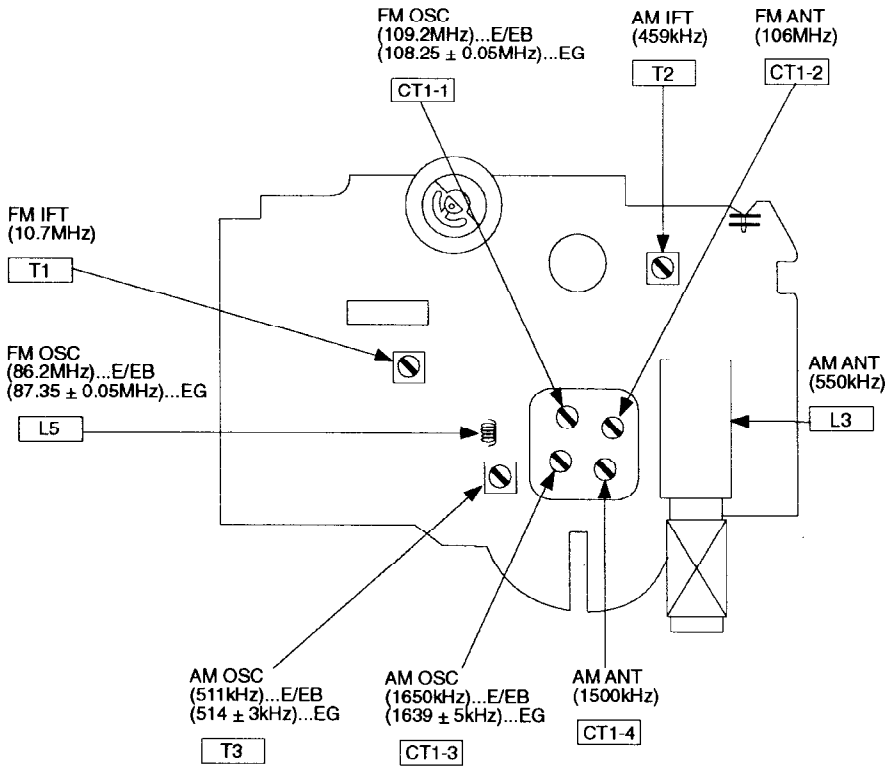
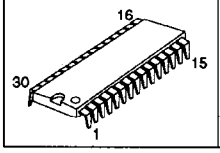
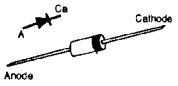
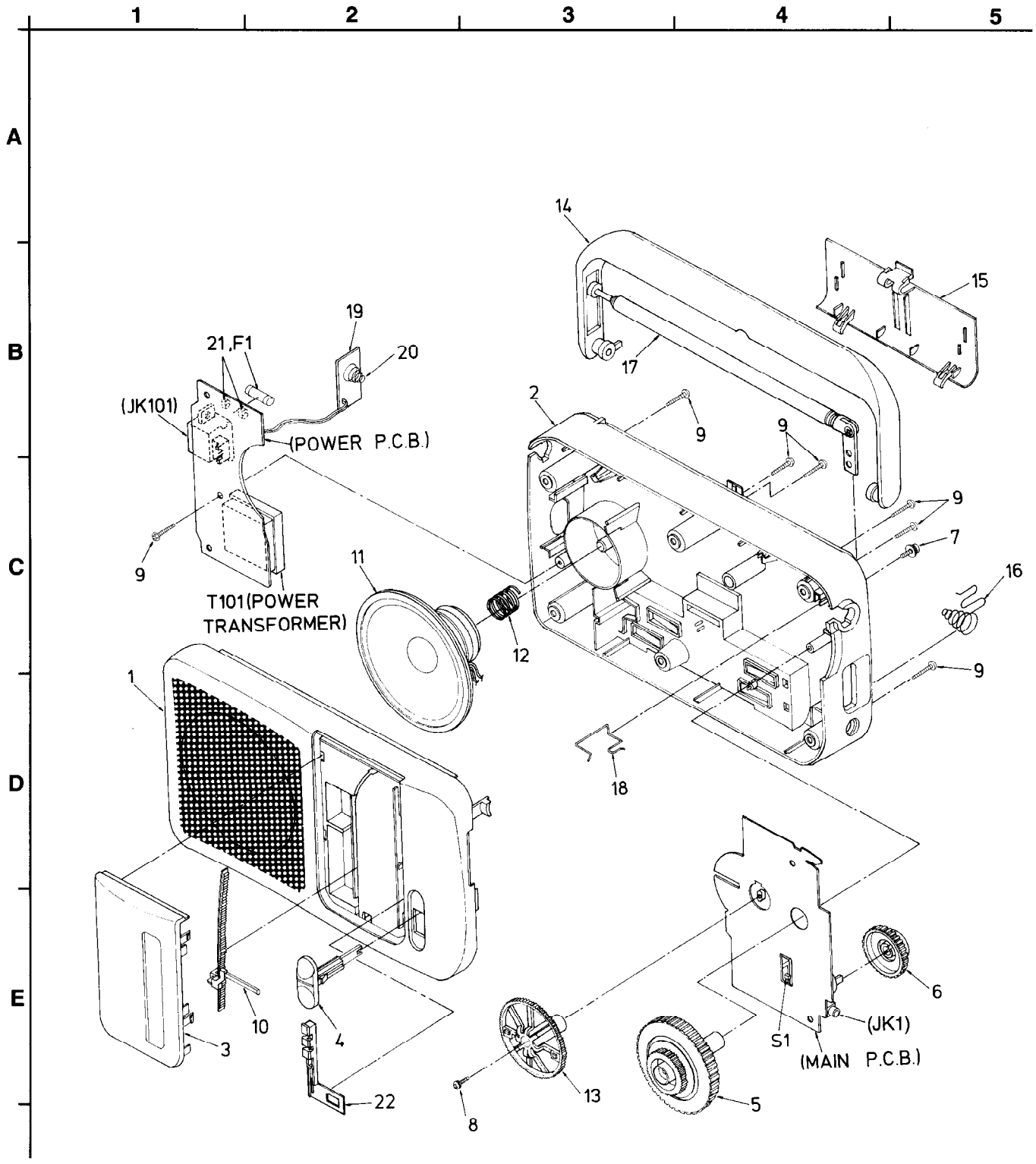


Fig. 3

■ TERMINAL GUIDE OF IC'S, TRANSISTORS & DIODES

CXA1019S	RVD1SR139TA
	

■ CABINET PARTS LOCATION



■ REPLACEMENT PARTS LIST

Notes: * Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low noise (resistors), etc are used.
When replacing any of these components, be sure to use only manufacturer's specified parts shown in the parts list .
* The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area)
Parts without these indications can be used for all areas.
* [M] Indicates in the Remarks columns indicates parts supplied by **MESA**.

Ref No.	Part No.	Part Name & Description	Remarks
		CABINET & CHASSIS	
1	RKMX0009A-H	FRONT CABINET	[M]
2	RKSX0011A-H	REAR CABINET	[M] (E)
2	RFKHF544EGK	REAR CABINET ASS'Y	[M] (EG)
2	RFKHF544EBK	REAR CABINET ASS'Y	[M] (EB)
3	RKDX0002A-K	DIAL PANEL	[M] (E/EB)
3	RKDX0002B-K	DIAL PANEL	[M] (EG)
4	RGVX0008-H	KNOB, SELECTOR	[M]
5	RGWX0009-H	KNOB, TUNING	[M]
6	RGWX0008-H	KNOB, VOLUME	[M]
7	XYN3+F8FY	SCREW	
8	XYN26+C8	SCREW	
9	XTV3+12G-M	SCREW	
10	RGJX0007-W	POINTER	[M]
11	EAS8P307JC-J	SPEAKER	[M]
12	RUQ50ZA	SPEAKER SPRING	[M]
13	RDGX0006	VARICON GEAR	[M]
14	RKHX0001-H	HANDLE	[M]
15	RKKX0001-H	BATTERY COVER	[M]
16	RJC93005-1	BATTERY SPRING	[M]
17	XEARK162DA-Y	ANTENNA ROD	[M]
18	RMEX0001	ANTENNA ROD SPRING	[M]
19	RJBX0016C	PCB, BATTERY	[M]
20	RJC70031ZB	BATTERY TERMINAL (-)	[M]
21	RJF28ZA	FUSE HOLDER	
22	RGQX0002-D	INDICATOR	[M]
		INTEGATED CIRCUIT(S)	
IC1	CXA1019S	IC, POWER AMP/AM-FM IF	
		DIODE(S)	
D101	RVD1SR139TA	DIODE	[M]
D102	RVD1SR139TA	DIODE	[M]
D103	RVD1SR139TA	DIODE	[M]
D104	RVD1SR139TA	DIODE	[M]
		VARIABLE RESISTOR(S)	
VR1	EVJF8AF15B14	VR, VOLUME	[M]

Ref No.	Part No.	Part Name & Description	Remarks
		VARIABLE CAPACITOR(S)	
VC1	RCV4LCT0V-R	VC, TRIMMER	[M]
		COIL(S) & TRANSFORMER(S)	
L1	RLQY50S5	COIL	
L2	RLQY50S5	COIL	
L3	RLF2C63-0Z	COIL, AM ANT	[M]
L5	RLD4Y43W	COIL, FM OSC	[M] (E/EB)
L5	RL04N214-0	COIL, FM OSC	(EG)
L101	RLQZB1R0KT-D	COIL	⚠
L102	RLQZB1R0KT-D	COIL	⚠
T1	RLI4B153-M	FM IF	
T2	RLI2B251-M	AM IF	
T3	RL02B118-M	AM OSC	
T101	RTP1I1B002-V	POWER TRANSFORMER	[M] ⚠
		FILTER(S)	
CF1	RVF107WDZT	FM CF	
CF2	RVFSFU459B	AM CF	[M]
		FUSE(S)	
F1	XBA2C025TB0	FUSE	⚠
		SWITCHE(S)	
S1	RSS3B45XA-H	SW, FUNCTION	[M]
S101	RJJ1SE01-H	SW, JACK W/SW (JK101)	⚠
		JACK(S)	
JK1	RJJD3M9ZA-H	JACK, EARPHONE	[M]
JK101	RJJ1SE01-H	JACK, AC IN	⚠
		ACCESSORIES	
A1	RQT1579-E	INSTRUCTION MANUAL	[M] (E/EG)
A1	RQT1579-E	INSTRUCTION MANUAL	[M] (EB) ⚠
A2	RJA0019-U	AC CORD	[M] (E/EG) ⚠
A2	RJA86ZC-K	AC CORD	[M] (EB) ⚠

Ref No.	Part No.	Part Name & Description	Remarks
		PACKING MATERIAL(S)	
P1	RPKX0005	GIFT BOX	[M]
P2	RPNX0007	POLYFOAM	[M]
P3	XZB30X25A04	POLYBAG	

Ref No.	Part No.	Part Name & Description	Remarks

■ RESISTORS & CAPACITORS

Notes : * Capacitor values are in microfarads (μF) unless specified otherwise, P=Pico-farads (pF) F=Farads
* Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM).
* Bracketed indications in Ref. No. columns specify the area (Refer to the first page for area).
Parts without these indications can be used for all areas.

Ref. No.	Part No.	Values & Remarks
		RESISTORS
R1	ERDS2TJ222T	2.2K 1/4W
R2	ERDS2TJ331T	330 1/4W
R3	ERDS2TJ122T	1.2K 1/4W
R4	ERDS2TJ272T	2.7K 1/4W (E/EB)
		CAPACITORS
C1	ECBT1H470J5	47P 50V
C2	ECBT1H5R6KC5	5.6P 50V
C3	ECBT0J223NS5	0.022 6.3V
C4	ECBT1H101KB5	100P 50V
C5	ECBT1H200JC5	20P 50V
C6	ECBT0J223NS5	0.022 6.3V
C7	ECEA1HU010B	1 50V
C8	ECBT1H8R2KC5	8.2P 50V
C9	ECBT1H120JC5	12P 50V (E/EB)
C9	ECBT1H200JC5	20P 50V (EG)
C10	ECBT1H220JC5	22P 50V
C11	ECBT1H8R2KC5	8.2P 50V
C12	ECBT0J223NS5	0.022 6.3V
C13	ECBT1H150JC5	15P 50V
C14	ECEA1EU4R7B	4.7 25V
C15	ECEA1HU010B	1 50V
C16	ECFR1C183KR	0.018 16V
C17	ECFR1C104MR	0.1 16V
C18	ECEA1CU100B	10 16V
C19	ECEA1AU471B	470 10V
C20	ECEA1HU2R2B	2.2 50V
C21	ECEA0JU221B	220 6.3V
C22	ECEA1AU471B	470 10V
C23	ECFR1C223KR	0.022 16V
C24	ECEA1AU330B	33 10V
C25	ECBT1H102KB5	0.001 50V
C101	ECKR1H103ZF5	0.01 50V

Ref. No.	Part No.	Values & Remarks
C102	ECKR1H103ZF5	0.01 50V
C103	ECKR1H103ZF5	0.01 50V
C104	ECKR1H103ZF5	0.01 50V

Ref. No.	Part No.	Values & Remarks